

Mon Valley Initiative Technology Office

Student Consultant, Paul Ip
Community Partner, Eric Sloss

About the Organization

The Mon Valley Initiative is an organization formed by a coalition of twelve Community Development Corporations (CDCs) in the Mon Valley targeting the development and revitalization of the Mon Valley, its communities, and its businesses. The mission of MVI is:

Working together to unite communities and restore the economic vitality of the Mon Valley.

To accomplish its mission, MVI is divided into four main program areas: Housing Development, Workforce Development, the Initiative Fund, and Community Outreach. In addition, there is also staff for community outreach programs and public relations. In all there are 20 employees working at MVI.

- Housing Development

Mission: To provide safe, affordable, attractive housing options for low-income families throughout the Mon Valley and revitalize economically distressed communities by renovating the existing housing stock and building new housing.

The Housing Development program has three facets: housing rehabilitation, low-income rental development, and new construction. The program also provides mortgage assistance to potential homeowners. Housing Development has recently secured \$1 million in funding for their housing rehabilitation program.

- Workforce Development

Mission: To help area residents attain the skills and career networks necessary to acquire 'living wage' jobs and begin productive, healthy careers. Collaborate with key stakeholders to create a focus on workforce and economic development, while providing the skilled work force regional companies need, continuing to encourage the development of the Mon Valley.

The Workforce Development program works with both employers and jobseekers. The program communicates with employers in the development phase so that the key points of concern are integrated into the workforce training program. Jobseekers are provided with both training and placement assistance. Recently, Verizon has provided a \$10,000 grant for the purchase of computers for their training program.

- Initiative Fund

Mission: To expand opportunities for small businesses in economically distressed Mon Valley communities by building wealth and creating financially sound, independent companies.

The Initiative Fund provides financing to small and startup businesses in the Mon Valley that demonstrate they will have a positive impact on the community and have demonstrated job creation potential, capacity, and acceptable credit history. To date, the

Initiative Fund has dispersed over \$160,000 in loans and currently has a \$1.6 million lending pool.

- Community Outreach

Mission: To enhance the public image of Mon Valley Initiative and its member community development corporations through public relations programs, special events and volunteer recruitment.

The Community Outreach program is responsible for CDC board development, recruiting of new members, and ongoing media relations. In addition, Community Outreach also sponsors several special events each year for fundraising, strategic planning, and volunteer recognition.

Laura Zinski is the CEO of MVI and is responsible for getting funding for MVI as well as reporting to the board of delegates. Funding comes mainly from public and private foundations as well as government sources.

Technical Environment

- Installed hardware and software

Each staff member at MVI has their own personal workstation which is attached to the local area network. With the exception of two staff members who have newer Pentium III laptops, all of the staff members use Pentium 233 systems. The standard software installed on these computers includes Windows 98, Microsoft Office 97, Internet Explorer, and Microsoft Outlook.

- Technology Usage

Use of the technology varies from group to group. The Housing Development team uses the internet to access property records on the Allegheny County website. The Workforce Development team uses technology in its training programs. Two staff members (one in Workforce Development and one in the Initiative Fund) have laptops that are sometimes used off site as part of their programs. In Community Outreach, email and attachments are used extensively for public relations communications. MVI also has a web site that is used for public relations purposes. All staff use email for internal communication as well as for communication with parties outside MVI. Email is accessed using Microsoft Outlook. Outlook is also used for conference room reservations.

- Network Environment

All the computers are attached to a local area network running 10base-T Ethernet. Aside from the hubs, which operate at 10Mbps, most of the other hardware is capable of faster network speeds of 100Mbps. The majority of the workstations are equipped with 10/100base-T Ethernet cards and the network uses CAT5 cables which are capable of running both 10base-T and 100base-T Ethernet.

There is a server located on the second floor of the office which serves as a mail server, DHCP server, file server, proxy server, print server, remote access server, and primary domain controller. The server is a Pentium II system running Windows NT 4.0.

- Also connected to the network is a set of network printers. These printers are placed throughout the office space and are usable by anyone on the network. In addition to the network printers, some workstations have personal printers attached to them.

Internet connectivity comes through a single 56kbps modem which is integrated into a Webramp, which serves as a gateway and a DNS server. The modem generally connects at 33.6kbps and has a dedicated line for a persistent connection with Stargate, MVI's ISP. This connection is used for mail service as well as internet access for the entire organization.

Problems and Opportunities

- MVI's internet connection struggled with large attachments
MVI connected to the internet using a single 56k modem that was shared among the entire organization, including the mail gateway. The mail gateway often had problems with large attachments, which would stall the entire system, affecting the entire organization. The setup also limited the sizes of attachments, which affected the ability of the community outreach branch of MVI to communicate with groups outside of MVI.
- MVI did not have a technology management strategy
Because technology is becoming increasingly important, it is critical for MVI to create a technology management strategy. Such a strategy would enable MVI to be prepared technologically for the future, further enabling the organization to accomplish its objectives. Furthermore, by planning the organization's technological growth, problems with incomplete or incompatible software could be avoided. This would not only reduce downtime due to technical problems, but would also reduce the burden on the in-house technical personnel.
- The web site was not being used to its full potential
MVI has a static web site hosted by Stargate. The web site provides an excellent opportunity to create more awareness and serve as a public relations tool. However, the site was not being updated regularly. By updating the content on a regular basis, the useful capacity of the site would be increased substantially.

The Consulting Focus

The client, Eric Sloss, is the Public Relations Coordinator at MVI. In addition to his primary role, Mr. Sloss has also taken on the responsibility of maintaining MVI's technology. Based on these roles, the following tasks were chosen as the focus of the partnership.

- Upgrade of Internet Connection
Our first task was evaluating the cost of upgrading from the existing dialup connection to a DSL connection. After determining what the initial and recurring costs were, we were able to obtain approval from Laura Zinski, the CEO. Mr. Sloss then ordered the DSL service and the necessary hardware under the advice of the consultant.

When the service was switched on, the consultant set up the hardware and instructed Mr. Sloss on how to set up the workstations to use the new connection. During the time when Mr. Sloss was making these changes, the consultant created documentation on how to troubleshoot and maintain the DSL hardware. The weeks following the initial installation were dedicated to troubleshooting the numerous glitches that sprouted up.

At the completion of the task, our expected outcomes included having a faster internet connection, a more knowledgeable client who would be able to troubleshoot network problems, and documentation detailing how to setup and maintain the DSL hardware.

- Technology Management Strategy

The Technology Management Strategy was approached very openly. The initial stage consisted of two brainstorming sessions over what topics should be included in the strategy, what the strategy should be, and what issues should be taken into account. During this time, Mr. Sloss also took the time to approach other members of the staff to see who would be interested in being a member of MVI's technical staff. He was able to find one staff member, Ms. King-Viehlend, who agreed to come aboard.

During the second stage, the Technical Management Strategy was to be written. However, due to resource constraints, we were unable to complete this stage during the course of the partnership.

At the completion of this task, our expected outcomes included having a draft of the Technology Management Strategy, additional technical staff, and some initial documentation. Due to time constraints, only an outline of the Technology Management Strategy was completed instead of a complete draft with initial documentation.

- Web Site Updates

The first task under this objective was to get Microsoft FrontPage working. After the site login information was obtained from the original web developer, Mr. Sloss and the consultant were able to make changes to the MVI web site.

Before making any substantial changes to the site, the consultant explained to Mr. Sloss the importance of working on a local copy of the website. After the orientation, Mr. Sloss and the consultant worked together to figure out how to set up FrontPage to do this. Afterwards, the consultant observed Mr. Sloss make the first round of changes to make sure that the changes were being saved and also to verify that Mr. Sloss was following the suggested process.

At the completion of this task, the expected outcomes were that Mr. Sloss would be able to make updates to the web site and that he would also have gained knowledge about what procedure to follow when making updates to the web site.

Consulting Outcomes

1. Upgrade of Internet Connection

Outcome #1: Connection speed to internet improved

- Synopsis:

MVI has upgraded its internet connection from a single 56kbps modem to a 384kbps DSL connection. Users on MVI's network are now able to access services on the internet faster than before.

- Impact:

Because MVI's connection speed to the internet has increased, the speed at which MVI can access and use services on the internet have increased in turn. The housing development program can now access information on Allegheny County's website faster, allowing them to increase their work capacity. In addition, incoming and outgoing e-mail attachments will no

longer slow down MVI's internet connection since there is more bandwidth to work with. This not only benefits Mr. Sloss, who uses e-mail attachments regularly as part of his public relations duties, but also the rest of the staff which no longer experiences slowdowns whenever attachments are being sent.

- Sustainability:
The DSL service requires little maintenance. The service provider handles the reliability of the service provided to MVI and the hardware on MVI's side requires minimal maintenance after the initial setup. This setup has already been completed and documented. In the event that the settings are somehow lost, the documentation provided walks through the steps required to troubleshoot and reconfigure the DSL hardware.

Outcome #2: Mr. Sloss gains knowledge about network configurations

- Synopsis:
During the course of the DSL installation process, Mr. Sloss was asked to change the network settings on a number of workstations. Through this process, Mr. Sloss was able to become more familiar with the network settings in Windows. Mr. Sloss was able to demonstrate this ability by making the changes on a significant number of workstations and also explaining to other staff members what he was doing.
- Impact:
Mr. Sloss' increased knowledge directly translates into increased capacity in his function as the head of technology management. He is now more skillful in troubleshooting and can communicate with outside consultants more fluently.
- Sustainability:
Mr. Sloss' knowledge will be maintained as long as he uses it on a regular basis. Since he is responsible for troubleshooting MVI's workstations, there is little risk that he will lose his aptitude in that area. However, there is greater risk that he may lose some of his knowledge of network configurations since this is not an area that Mr. Sloss works on on a regular basis.
- Additional Observations:
Presently, Mr. Sloss is the key beneficiary of this new knowledge. However, it would be in everyone's best interests if this knowledge was documented. By creating such documentation, Mr. Sloss can then share his knowledge more easily with others involved in MVI's technology management. Furthermore, it would serve as a backup in the event that Mr. Sloss is unavailable when help is needed.

Outcome #3: Starter documentation created for network

- Synopsis:
Documentation was created detailing how to troubleshoot and configure the DSL hardware. This documentation has been given to Mr. Sloss for reference.
- Impact:
By having this documentation, MVI not only maintains the knowledge of how to maintain the DSL hardware, but also gets a template for future documentation. Based on this example, MVI's technology management could create additional documentation in the future to cover other parts of their technical environment.
- Sustainability:
The documentation serves as a means to sustain the outcome of the faster internet connection. However, in order to be most effective, the documentation should be maintained and kept up to date.
- Additional Observations:
Although the documentation itself does not illustrate increased capacity, it provides the foundation for increased capacity. By using the framework provided by the documentation, MVI's technology management could create additional documentation covering various

facets of MVI's technical environment. If MVI can find the time and resources to accomplish this, the capacity of their technology management efforts will greatly benefit.

Recommendation #1: Update DSL documentation to include POP3Gate settings

- Impetus:
Since the DSL documentation was written, the configuration of the DSL router has changed so that POP3Gate could continue working. However, the change in settings is not reflected in the documentation. The documentation should be updated to include these additional settings.
- Rationale:
 - a) If these additional settings are not recorded, recovery of the settings would be much more difficult. Recording the settings would allow MVI to recover the settings in the event that they are lost without having to seek assistance from Stargate.
 - b) Keeping documentation up to date is something that should be done whenever possible. Updating the documentation now will help make documentation updates more routine.
- Approach:
 - a) From any workstation on the network, access the DSL router as described in the documentation.
 - b) Click on the "Advanced" tab at the top of the screen.
 - c) Click on the "Forwarding" tab at the top of the screen.
 - d) Take a screen capture of the screen with the settings visible (ALT + Print Screen on the keyboard).
 - e) Paste the screenshot into the DSL documentation and include steps on how to get to the screen (the steps described above).
 - f) Save the revised DSL documentation and update all copies.
- References:
Mr. Sloss has a copy of the DSL documentation that describes how to access the configuration screens for the DSL router. This documentation would be needed to complete the first step in accomplishing this task.

Recommendation #2: Document network settings for workstations

- Impetus:
When the DSL was installed, a number of workstations needed their network settings changed by Mr. Sloss. The proper configuration should be documented so that any additional workstations to be added in the future can be properly configured.
- Rationale:
 - a) Documenting the network settings would help insure that all existing and future workstations have the same network settings. Having such documentation can help bypass any headaches such as those experienced when upgrading to DSL.
 - b) Documenting this knowledge would help Mr. Sloss maintain his knowledge in this area. Since network settings are not dealt with regularly, unless they are documented, Mr. Sloss risks losing the knowledge that he has gained.
 - c) The documentation can be used to make this knowledge more readily available to the other technical staff at MVI. It would also serve as a backup for Mr. Sloss in the event that a problem arises when he is unavailable.
- Approach:
 - a) From any workstation, right-click on "Network Neighborhood" and select "Properties..." from the menu that appears.
 - b) Record the configuration information and place it in a document.
 - c) Save the document in the same place as the other technical documentation.

- References:
Mr. Sloss should have knowledge of what configuration data should be recorded. The information to be recorded should essentially document the changes that Mr. Sloss made to the workstations on the third floor when the DSL was installed.

2. Technology Management Strategy

Outcome #1: Outline of Technology Management Strategy

- Synopsis:
Mr. Sloss and the consultant have worked together to create an outline of MVI's technology management strategy and what it should contain.
- Impact:
With this outline, Mr. Sloss has created the foundation for a more detailed Technology Management Strategy. Through the process Mr. Sloss has also gained insight into what issues need to be addressed when creating a Technology Management Strategy.
- Sustainability:
Mr. Sloss actively participated in the process of creating the outline and is aware of what issues are involved. Through this experience, Mr. Sloss should be capable of making changes to the strategy in the future.
- Additional Observations:
Mr. Sloss has not been able to find the time required to write out formal documentation to support this outline. Without formally writing out the strategy, there is a risk that the strategy will fail to be realized. Mr. Sloss should try to write out the details of the strategy as soon as possible (see Recommendation #1).

Outcome #2: Additional technical staff recruited

- Synopsis:
Mr. Sloss has been able to recruit another staff member to assist with technical duties at MVI. Ms. King-Viehland has volunteered to help and will be supporting the staff in the first floor office space.
- Impact:
Mr. Sloss will have additional help with his technical duties. Consequently, he will be able to spend more of his time working on his primary task of public relations. Ms. King-Viehland will also benefit from the technical experience. Furthermore, with two people working as technical staff, there will be a backup for Mr. Sloss who can perform his duties in the event that he is unavailable.
- Sustainability:
Ms. King-Viehland had demonstrated a willingness to help out even before she was asked to join the technical staff. Barring any change in sentiment, Ms. King-Viehland will continue to assist Mr. Sloss in performing technical duties at MVI.
- Additional Observations:
At the time of this report, Ms. King-Viehland does not have the same amount of knowledge that Mr. Sloss has regarding the technical environment at MVI. She is also not presently capable of standing in for Mr. Sloss in the event that he is away for an extended period of time. Mr. Sloss should take steps to further acquaint Ms. King-Viehland with the technical environment and the procedures that Mr. Sloss currently performs on a daily basis (such as backing up the server).

Recommendation #1: Complete formalized Technology Management Strategy

- Impetus:
During the consulting period an outline of the technology management strategy was created, but there was insufficient time for Mr. Sloss to formally write out the Technology Management Strategy document itself.
- Rationale:
 - a) The Technology Management Strategy should be formalized and documented so that it can be referenced in the future. Without such a document, there would be no explicit guidelines to follow and the Technology Management Strategy would slowly become forgotten.
 - b) A formalized Technology Management Strategy would remind the technical staff of what the goals of MVI's technology management are. Without it, MVI's technology management may lose its direction.
- Approach:
 - a) Flesh out the outline of the Technology Management Strategy
 - b) Go over the strategy with the staff and management to get feedback
 - c) Revise the plan based on feedback
 - d) Publish the plan and store it on the server along with the other technical documentation
- References:
An outline of the strategy has already been completed and would be a good place to start. When composing the details, the frequency, responsible parties, documentation requirements, visibility, approach, and rationale of the procedures or protocols should all be documented.

Recommendation #2: Create and populate a repository for technical documentation

- Impetus:
While analyzing the technical environment at MVI, it was clear that there was no centralized source of information covering MVI's technical assets. The best source of information was usually from staff members. Even then, the information provided was often incomplete or outdated. For example, no one outside of Workforce Development knew that two modems were used for people to dial into the organization's network. Conversely, most staff believed that internet was obtained through the use of two modems, although in reality only one modem was used.
- Rationale:
 - a) A centralized repository of technical information would give the technology management team a means of quickly monitoring MVI's technical assets.
 - b) By centralizing technical information into one place, there should no longer be any question what the most accurate source of information is.
 - c) Placing the technical documentation on the server would permit all staff to view it, creating opportunities to create documentation geared towards the regular staff. Such documentation could be used to allow the staff to help themselves, walking them through some common problems that they may encounter. This would in turn reduce the amount of time the technical staff spends troubleshooting people's workstations.
 - d) By sharing the technical documentation from a centralized location, it would eliminate any need to distribute copies of the documentation to all technical staff. There would also be no need to update separate copies of documents whenever a document is updated.
 - e) Information stored on the server would be less susceptible to loss since it is backed up on a regular basis.
 - f) By having all technical documentation organized in a central location, obscure information would be easier to find.

- g) By having technical documentation available, MVI may be able to save money on outside consultants since the outside consultants would have an easier time finding information regarding the technical environment. This time saved by the consultants translates into a direct cost savings since consultants charge by the hour.
- Approach:
 - a) Identify items that need documentation (procedures and information)
 - b) Prioritize which items should be documented first
 - c) Create a centralized repository for technical documentation on the server
 1. Create a folder on server for documentation
 2. Right-click on the folder
 3. Select "Sharing..." from the popup menu
 4. Select "Share this folder"
 5. Enter a name for the shared folder.
 6. Click "OK"
 - d) Inform the staff of the existence of this repository.
 - e) Compose documentation and place it into the repository
 - f) Update documentation whenever changes need to be made
- References:

The first piece of documentation has already been created (DSL documentation). Additional procedural documentation can be created by adapting the format used in the DSL documentation. Informational documentation can be created in whatever format is most appropriate. Certain documentation such as problem logs may be used in their current form.

Recommendation #3: Formally recognize technical duties within the organization

- Impetus:

Throughout the consulting period, Mr. Sloss has been juggling the roles of public relations coordinator and technology head. However, since Mr. Sloss' formal role is public relations, there have been times when he has been forced to reduce the amount of time he can spend on technical matters.
- Rationale:
 - a) MVI has a fairly advanced technical environment and the task of managing it is not going to go away. In fact, it is likely to get bigger and more time consuming as MVI continues to grow. It is inevitable that someone must be able to dedicate a fair share of time towards managing MVI's technological assets.
 - b) Formally adding technical responsibilities to the involved staff's job descriptions would help recognize the importance of this role and provide a justification for setting aside time to care for the technical environment.
 - c) By bequeathing a formal title on those involved, it would give the involved staff members an additional source of pride and recognition for helping out.
 - d) Having these roles made explicit will give the technology management more visibility and accountability. For other staff members, it would clearer who they should contact if they have any ideas on how to use technology at MVI.
- Approach:
 - a) Meet with management to discuss the possibility of this happening

3. Web Site Updates

Outcome #1: Web site updated

- Synopsis:
Mr. Sloss has been able to successfully update several pages on the web site. He has not only done this during the site visits, but has been able to make updates on his own.
- Impact:
By updating the web site regularly, Mr. Sloss has gained an additional tool with which he can perform his public relations duties. This expands Mr. Sloss' capacity in his public relations role and also increases the effectiveness of MVI's web site.
- Sustainability:
During the term, Mr. Sloss has demonstrated that he is willing and able to update the web site regularly. When he made his first update, he was ecstatic about it. Since then he has made several updates to the web site on his own. Because this is part of his public relations duties, there is no reason to believe that he will stop updating the web site.
- Additional Observations:
Presently, only Mr. Sloss knows how to make updates to the web site. Without Mr. Sloss, MVI will no longer be able to sustain this outcome. To address this issue, it is recommended that documentation be created outlining this process. (see Recommendation #2)

Outcome #2: Mr. Sloss learns web publishing process

- Synopsis:
Mr. Sloss has learned some basic knowledge about the web publishing process. He now has a local copy of the web site on his workstation that serves as his working copy. He has also set up a bookmark in Internet Explorer so that he can verify his changes before updating the files on the web server.
- Impact:
Mr. Sloss has incorporated these techniques into his process of updating the web site. Because he makes changes on a local copy of the web site, it is less likely that he will make a change to the web server that is irreparable. This helps safeguard the web site, enhancing its sustainability.
- Sustainability:
Since Mr. Sloss first learned the process, he has been making updates to the web site regularly following these guidelines. Seeing that he has been following this process so far, there is no reason to believe that he will stop.
- Additional Observations:
Presently, only Mr. Sloss is familiar with this process. Without Mr. Sloss, MVI will no longer be able to sustain this outcome. To address this issue, it is recommended that documentation be created outlining the web publishing process. (see Recommendation #2)

Recommendation #1: Find additional uses for the web site

- Impetus:
So far Mr. Sloss' updates to have website have been limited to the site's content. Although this does increase the utility of the website, it is still limited to the existing structure and content. Additional potential continues to lie untapped. However, much of this potential cannot be realized without more drastic changes to the website.
- Rationale:
 - a) Although the current web site is sufficient for its current task, there are many other possible applications for the technology.

- b) In order to take full advantage of the technology, there needs to be a solid understanding of what it is capable of and how it can be used to help MVI accomplish its objectives.
- Approach:
 - a) Look at other sites on the web to search for ideas and novel features
 - b) See if any of these ideas/features are applicable to MVI's web site
- References:

Any web site on the internet can be a reference. Web sites for organizations similar to MVI may be particularly useful since they may provide additional insights on how the web can be used to reach similar goals. However, any web site can seed ideas on how web technology can be used as a means of communicating and interacting with people.

Recommendation #2: Document web publishing process

- Impetus:

Presently, Mr. Sloss is solely responsible for updating the web site. Likewise, he is the only person at MVI who knows how to update the web site. In this current arrangement, MVI is dependent on Mr. Sloss for these updates. From an organizational standpoint, it would be ideal to have another staff member who would be knowledgeable enough to take on this task in the event that Mr. Sloss is not able to.
- Rationale:
 - a) MVI should not be completely reliant on a single individual for any single task. If something happens to that individual, a backup should be available who would be able to complete the same task.
 - b) Even if Mr. Sloss were to sit down and walk someone through the process of updating the web site, there should still be some documentation detailing certain information such as login information, location of files, etc. Without such documentation, it would be easy to forget this information.
- Approach:
 - a) Create documentation detailing the process of publishing web updates
 - b) Save the documentation in the same place as the other technical documentation
- References:

Mr. Sloss know the process of making updates to the web site and should have sufficient knowledge to create this documentation. The format of the documentation can be adapted from the format used for the DSL documentation.

Other Recommendations

1. Create and use e-mail distribution lists

- Impetus:

During the time of the consulting partnership, a centralized contact list was created within Outlook to be shared among all staff in the organization. In the beginning stages, this may be helpful in creating a centralized repository for contacts. Although having a centralized contact list is beneficial, it could be made even more useful if it were properly organized.
- Rationale:
 - a) Distribution lists can help organize the contacts into more logical groups as the number of contacts increases.
 - b) The creation of distribution lists could serve as a springboard for creating targeted communications for certain groups. This would make certain types of

communications easier (i.e. contact with volunteers, CDCs, board members, etc.). In addition, this also provides an opportunity to increase awareness by distributing electronic newsletters via email, thus helping fulfill the mission of the community outreach group.

- c) The impacts of distribution lists are real and observable by nearly everyone in the organization. Doing something like this will likely open some eyes on how technology can be used and raise expectations on how technology can be used in MVI's programs. By expanding the staff's horizons, people may be able to come up with additional novel applications of technology within the organization.
- Approach:
 - a) Survey staff to determine what lists would be useful
 - b) Create groups based on feedback from staff
 - c) Investigate additional uses for distribution lists (i.e. newsletters, event notifications, fundraising, etc.)
- References:

The distribution lists will be created in Microsoft Outlook. Information on what distribution lists are, how they work, and what options are available in Microsoft Outlook can be found here: <http://www.ku.edu/exchange/dlists/dlistsoverview.shtml>

Information on how to create distribution lists in Outlook can be found in the user manual for Microsoft Outlook as well as third party reference books available at most bookstores.

2. Standardize Workstation Configurations

- Impetus:

While helping Mr. Sloss troubleshoot some network settings, I noticed that the workstations at MVI were not as consistently configured as I previously believed. Versions of Internet Explorer ranged anywhere from version 4 to version 6. More importantly, the network settings amongst the workstations were not consistent. While some workstations were configured to get network configuration information from the server, other workstations were not. This created a number of headaches as not only did we need to change the network settings on the server, but we had the additional unexpected task of setting up all the workstations to get the new network information from the server.
- Rationale:

Having standard configurations for all the workstations would eliminate a lot of headaches that may arise when troubleshooting or upgrading systems. As mentioned above, the problem was discovered while observing Mr. Sloss troubleshoot some network settings. Previously, the network settings on the server were changed under the assumption that all the workstations would get the updated network settings from the server. However, some workstations were not set up to do this and needed additional changes. If all the systems were similarly configured, the change in network settings would have worked for all of the workstations. This would have resulted in a savings of at least 3 hours of time spent troubleshooting the delinquent systems. This time spent troubleshooting could have been used by both the CP and the users of the workstations to work towards their missions.
- Approach:
 - a) Take an inventory of installed software and operating systems
 - b) Determine what non-standard software should stay

- c) Determine correct settings for network, etc.
 - d) Standardize network settings
 - e) Standardize installed software, keeping needed non-standard software
 - f) Make an effort to maintain standard configurations for software and hardware (ideally all of the workstations should be identical in terms of hardware components as well as software components and configurations)
- **References:**

Software is available to help inventory what hardware and software is installed in each system. There are quite a few of these available and a good number of them can be found on sites such as www.downloads.com. One tool that is easy to use is Belarc Advisor, which can be downloaded for free at http://www.belarc.com/free_download.html.

About the consultant:

Paul Ip is a senior in Computer Science with a double major in Human Computer Interaction and a minor in Multimedia Production. After graduation in May 2002, Mr. Ip will enter industry as a Web Experience Developer. He will also do freelance web design and computer support on the side.